

## DCTH Series Internally Amplified LVDT Displacement Transducer

- Voltage output
- High accuracy
- High cycle life
- Stainless steel
- High resolution



These transducers are for displacement / position measurement. They make an accurate position measurement of the movement of the armature (the sliding part) relative to the body of the displacement transducer.

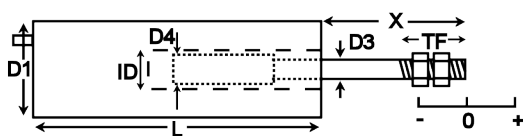
This transducer uses the Linear Variable Differential Transformer (LVDT) principle which means that it is probably the most robust and reliable position sensor type available. The strength of the LVDT sensor's principle is that there is no electrical contact across the transducer position sensing element which for the user of the sensor means clean data, infinite resolution and a very long life.

Our DC to DC LVDT transducer has all of the benefits of the LVDT sensor principle with the added convenience of built-in LVDT electronics enabling a dc supply and dc output.

This series of displacement transducer is available as either an unguided, captive or spring return version.

### Unguided version.

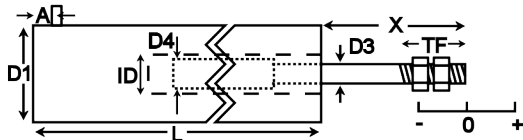
#### DCTH100 to DCTH400 - End (axial) exit cable



D1=20,6mm  $\pm 0,12$ mm  
 D3=2mm  
 D4=2,0mm  
 ID=2,54mm  
 TF=M3x0,5  
 X=Centre of range

On our DCTH unguided LVDTs the armature assembly is a separate component, to make a measurement the user must guide the armature inside the body without touching the sides. Our DCTH unguided position measurement transducers are appropriate where external guidance is available and give truly non-contact operation

#### DCTH500 to DCTH8000 - Side (radial) exit cable



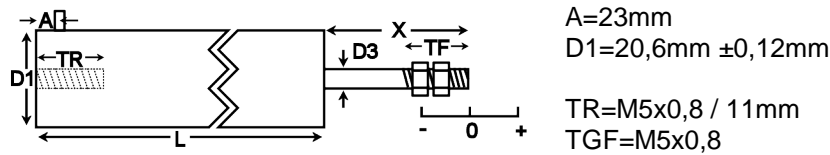
A=9mm  
 D1=20,6mm  $\pm 0,12$ mm  
 D3=4,75mm  
 D4=5,97mm  
 ID=6,8mm  
 TGF=M5x0,8

Type	Range	Linearity error (% F.S.)	L	X (nom)	Total weight	Armature weight	TF	Inward over-travel
DCTH100	$\pm 2,5$ mm	$\pm 0,5/\pm 0,25/\pm 0,1$	64mm	33mm	74g	1,4g	18mm	11,6mm
DCTH200	$\pm 5$ mm	$\pm 0,5/\pm 0,25/\pm 0,1$	64mm	33mm	74g	1,8g	18mm	9,0mm
DCTH300	$\pm 7,5$ mm	$\pm 0,5/\pm 0,25/\pm 0,1$	64mm	33mm	74g	1,8g	18mm	6,5mm
DCTH400	$\pm 10$ mm	$\pm 0,5/\pm 0,25$	64mm	33mm	74g	1,9g	18mm	3,9mm
DCTH500	$\pm 12,5$ mm	$\pm 0,5/\pm 0,25/\pm 0,1$	175mm	43mm	213g	17g	15mm	16mm
DCTH1000	$\pm 25$ mm	$\pm 0,5/\pm 0,25/\pm 0,1$	203mm	69mm	270g	23g	15mm	22mm
DCTH2000	$\pm 50$ mm	$\pm 0,5/\pm 0,25/\pm 0,1$	317mm	81mm	369g	37g	15mm	16mm
DCTH3000	$\pm 75$ mm	$\pm 0,5/\pm 0,25/\pm 0,1$	430mm	119mm	497g	55g	15mm	29mm
DCTH4000	$\pm 100$ mm	$\pm 0,5/\pm 0,25/\pm 0,1$	475mm	132mm	625g	71g	15mm	16mm
DCTH6000	$\pm 150$ mm	$\pm 0,5/\pm 0,25$	666mm	183mm	852g	100g	15mm	16mm
DCTH8000	$\pm 200$ mm	$\pm 0,5/\pm 0,25$	856mm	259mm	1,3kg	140g	29mm	27mm

## Captive guided version.

Our DCTH captive guided displacement transducer has bearings to guide the armature inside the measurement sensor. Our DCTH captive LVDTs are for position measurement applications where guidance may be poor and end bearings may be required.

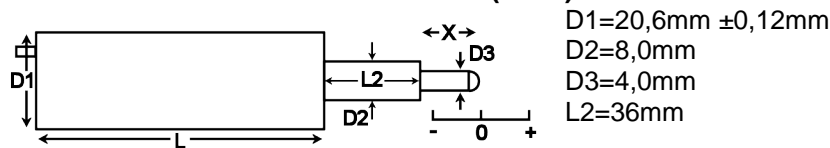
### DCTH500C to DCTH185000C - Side (radial) exit cable



Type	Range	Linearity error (% F.S.)	L	X (nom)	D3	Total weight	TF	Inward over-travel	Outward over-travel
DCTH500C	±12,5mm	±0,5/±0,25/±0,1	194mm	38mm	4,75mm	340g	15mm	10mm	12mm
DCTH1000C	±25mm	±0,5/±0,25/±0,1	222mm	63mm	4,75mm	398g	15mm	13mm	10mm
DCTH2000C	±50mm	±0,5/±0,25/±0,1	336mm	76mm	4,75mm	511g	15mm	10mm	14mm
DCTH3000C	±75mm	±0,5/±0,25/±0,1	448mm	114mm	4,75mm	625g	15mm	24mm	15mm
DCTH4000C	±100mm	±0,5/±0,25/±0,1	494mm	127mm	4,75mm	767g	15mm	8mm	14mm
DCTH6000C	±150mm	±0,5/±0,25	684mm	178mm	4,75mm	1,0kg	15mm	12mm	17mm
DCTH8000C	±200mm	±0,5/±0,25	875mm	254mm	4,75mm	1,4kg	32mm	22mm	25mm
DCTH10000C	±250mm	±0,5/±0,25	1067mm	305mm	4,75mm	1,7kg	27mm	34mm	35mm
DCTH15000C	±380mm	±0,5	1473mm	406mm	4,75mm	2,2kg	19mm	13mm	13mm
DCTH18500C	±470mm	±0,5	1740mm	508mm	6,00mm	2,6kg	27mm	5mm	33mm

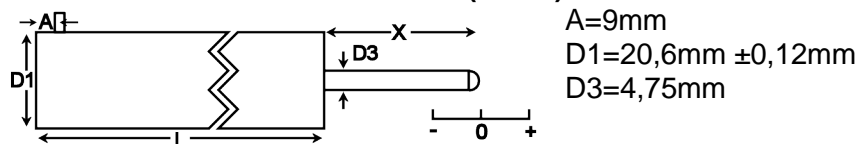
## Spring return version.

### DCTH100AG to DCTH400AG - End (axial) exit cable



Our DCTH spring displacement transducer has bearings to guide the armature inside the measurement sensor and a spring which pushes the armature to the fully out position. Our DCTH spring return LVDTs are appropriate where it is not possible to connect the transducer armature to the moving component being measured.

### DCTH500A to DCTH3000A - Side (radial) exit cable



Type	Range	Linearity error (% F.S.)	L	X (nom)	Total weight	Spring force at X	Spring rate	Inward over-travel	Outward over-travel
DCTH100AG	±2,5mm	±0,5/±0,25/±0,1	64mm	12mm	83g	1,0N	0,9N/cm	2,2mm	1,3mm
DCTH200AG	±5mm	±0,5/±0,25/±0,1	64mm	13mm	83g	1,0N	0,8N/cm	0,3mm	1,3mm
DCTH300AG	±7,5mm	±0,5/±0,25/±0,1	64mm	18mm	83g	1,5N	0,6N/cm	1,4mm	1,3mm
DCTH400AG	±10mm	±0,5/±0,25	64mm	22mm	83g	1,8N	0,8N/cm	1,3mm	1,3mm
DCTH500A	±12,5mm	±0,5/±0,25/±0,1	182mm	38mm	227g	1,3N	0,2N/cm	1,0mm	13mm
DCTH1000A	±25mm	±0,5/±0,25/±0,1	210mm	63mm	284g	2,0N	0,3N/cm	3,0mm	10mm
DCTH2000A	±50mm	±0,5/±0,25/±0,1	324mm	75mm	398g	1,8N	0,2N/cm	8mm	14mm
DCTH3000A	±75mm	±0,5/±0,25/±0,1	436mm	114mm	511g	6,0N	0,4N/cm	15mm	15mm

Specification	
Supply voltage (dual)	±12V to ±18V 30mA
Supply voltage (single, must be floating)	24V to 36V 30mA
Change in output for change in supply	5mV/V
Output 1	0V to 10V (+0% - 5%)
Output 2	±5V (+0% - 5%)
Output ripple	30mV (peak-to-peak)
Analogue output bandwidth	200Hz
Output impedance	2 Ohms
Linearity error (Standard)	±0,5% F.S.
Linearity error (Optional on some models)	±0,25% F.S.
Linearity error (Optional on some models)	±0,1% F.S.
Temperature coefficient (span)	±0,03% F.S. /°C (typical)
Operating temperature range	-40°C to 80°C
Electrical termination	2m (integral cable) Longer available to order,



Due to our policy of on-going development, DCTH specifications may change without notice. Any modification to our DCTH may affect some or all of the specifications for our equipment. All DCTH dimensions and specifications are nominal.

#### DCTH - WARNING - PERSONAL INJURY

Do not use our DCTH as safety, emergency stop or feedback devices in any application where the failure of this product could result in damage to equipment, personal injury or death.

Manufacturer  
RDP Electronics Ltd  
Grove Street, Heath Town  
Wolverhampton, West Midlands, WV10 0PY  
United Kingdom  
Tel: +44 1902 457512  
Email: sales@rdpe.com  
URL: www.rdpe.com

Distributor  
Transducer Technology (Pty) Ltd  
54 Eleventh Avenue, Northmead  
Benoni, 1501, South Africa  
Tel: +27 11 425 2094  
Fax: +27 11 425 3359  
Email: sales@transducers.co.za

Torque  
Position  
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Load Cell  
Displacement  
Instrumentation